

Why are the Final Recommended Water Quality Criteria for Cadmium different from the Draft?
Following the 60-day public comment period, EPA considered the comments received and revised the draft criteria as follows:

- The draft one-hour freshwater acute criterion maximum concentration was lowered from 2.1 µg/L to 1.8 µg/L. This decrease resulted from the removal of two data points for insensitive salmonid life stages.
- The draft four-day average freshwater chronic criterion was slightly lowered from 0.73 µg/L to 0.72 µg/L based on the addition of newly-acquired data for one test species.
- The draft one-hour estuarine/marine acute criterion maximum concentration of 35 µg/L was slightly lowered to 33 µg/L. This decrease was based on the removal of data for a shrimp species not found in North American waters with newly acquired data for a shrimp species native to North American waters.
- The draft four-day average estuarine/marine chronic criterion magnitude of 8.3 µg/L was slightly lowered to 7.9 µg/L. This decrease is based primarily on the change in data used to calculate the estuarine/marine acute criterion maximum concentration, in conjunction with the acute-to-chronic ratio used to derive the chronic with the acute criterion.

How Do the 2016 Criteria Compare to the Previously Recommended 2001 Criteria?

The 2016 criteria incorporate data for 75 new species and 49 new genera. The 2016 freshwater acute criterion (1.8 µg/L) for dissolved cadmium is slightly lower (i.e. more stringent) than the 2001 acute criterion (2.0 µg/L). The 2016 freshwater chronic criterion (0.72 micrograms per liter) for dissolved cadmium is slightly higher (less stringent) compared to the 2001 criteria (0.25 µg/L). These modest changes are primarily due to the inclusion of new toxicity studies. As in the 2001 criteria, the 2016 freshwater acute criterion was derived to be protective of aquatic species and lowered further to protect the commercially and recreationally important rainbow trout. In addition, the duration of the 2016 acute criteria was changed to one hour. Both changes are consistent with procedures described in EPA's current aquatic life criteria guidelines.

The 2016 estuarine/marine acute criterion for dissolved cadmium (33 µg/L) is slightly lower (more stringent) than the 2001 acute criterion (40 µg/L), which is primarily due to the addition of new toxicity studies for sensitive genera. The 2016 estuarine/marine chronic criterion (7.9 µg/L) is also slightly more stringent than the 2001 chronic criterion (8.8 µg/L) due once again to the addition of new toxicity studies for sensitive genera.

What is EPA doing to help ensure these criteria protect threatened and endangered species?

The criteria document contains an analysis of the protectiveness of the draft criteria for threatened and endangered species using all acceptable toxicity test data that are available for species listed under the Endangered Species Act. EPA also conducted a detailed analysis of the protectiveness of the criteria for endangered salmon to address the National Marine Fisheries Service concerns regarding the protectiveness of the acute cadmium criteria.

Ex. 5 - Deliberative Process

Advocates (NWEA) following EPA's 2013 disapproval of Oregon's freshwater acute cadmium criterion. EPA's disapproval triggered a Clean Water Act duty for EPA to propose a replacement criterion for Oregon. EPA intends to use the updated criteria document as the scientific basis for a rulemaking to propose criteria for Oregon.

The basis of EPA's disapproval of Oregon's cadmium criterion (and EPA's resultant duty to propose a replacement criterion for Oregon) was a 2012 jeopardy biological opinion from the National Marine Fisheries Service (NMFS) for acute effects to salmon species based on EPA's 2001 freshwater acute cadmium criterion (which Oregon had adopted as the state's water quality standards). Although the 2016 updated acute criterion has changed only slightly since 2001, the duration of the acute criterion was made more protective (decreased from 24 to one hour). A draft Endangered Species Act analysis prepared by EPA indicates that the updated freshwater criteria will provide approximately 95 percent protection for acute exposure to endangered salmonids, which is a minimal effects level associated with the jeopardy opinion.